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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,682	03/26/2001	Liang-Gi Yao	JCLA5662-CIP	8760

7590

04/03/2003

J.C. Patents  
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EXAMINER

LEE, EUGENE

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/817,682

Applicant(s)

YAO ET AL.

Examiner

Eugene Lee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 3/18/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

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## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of layers must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1 thru 3 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

It is unclear what the applicant is referring to when claim 1 states the limitation "plurality of layers". The specification does not mention a "plurality of layers" and it appears the only layer is the substrate 100. Appropriate clarification and correction are required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1 thru 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Kepler et al. 6,037,671. Kepler discloses (see, for example, Figure 4) an alignment mark structure comprising a leftmost section (alignment mark) 23, and a middle section (a trench) 23. The leftmost section contains first trenches (plurality of recesses) 23a separated by a spacing 23b. In column 5, lines 10-17, Kepler discloses the spacing as  $w_1$  (d) and equaling about .375  $\mu\text{m}$ . In column 4, lines 46-48, Kepler states that the distance W (the distance between the leftmost section and the middle section) is 8  $\mu\text{m}$ . Therefore the distance W is  $21.3W_1$  ( $21.3d$ ), which clearly falls within the range of  $5d$  to  $80d$ .

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 thru 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraishi 6,285,455 B1. Shiraishi discloses (see, for example, Fig. 5(g)) a semiconductor device comprising alignment marks 26 and a circuit pattern 29. The circuit pattern contains wide recesses (trenches) 25a, 25b, 25c. In Fig. 5(g), Shiraishi clearly shows the distance between the alignment trenches and the wide recesses within the range of 5P to 80P (5d to 80d) wherein P is the distance between the individual alignment trenches. The lines in the substrate 4 make it clear that the distance is around 9P (9d).

Shiraishi does not expressly disclose that the distance between the alignment trenches and the wide recesses is in the range of 5P to 80P (5d to 80d). However, this distance is regarded as a matter of obvious design choice. One of ordinary skill in the art would realize that a range of 5P to 80P would leave adequate space between circuit pattern area and the alignment area, without providing any critical or unexpected results to the semiconductor device's operation. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a range of 5P to 80P (5d to 80d) in order to provide adequate separation between the wide recesses of a circuit pattern area and an alignment area so that the electrical operation of the circuit pattern area is not affected by the manufacturing part (alignment area) of the semiconductor device.

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In re Aller, the court stated, "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456 105 USPQ 233, 235 (CCPA 1995).

### ***Response to Arguments***

8. Applicant's arguments, see pages 2-4, filed 3/18/03, with respect to the rejection(s) of claim(s) 1-3 under Komuro '145 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art reference.

### **INFORMATION ON HOW TO CONTACT THE USPTO**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Lee whose telephone number is 703-305-5695. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 703-308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

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Eugene Lee

March 27, 2003

A handwritten signature in black ink, appearing to read 'Eddie Lee', with a large loop at the top and a stylized 'E'.

**EDDIE LEE**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**